**ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION**
**AIR QUALITY CONTROL GENERAL OPERATING PERMIT**

# ASPHALT PLANT GENERAL PERMIT
# GENERAL PERMIT 3
# STATEMENT OF BASIS

## Qualifying Criteria

This permit is intended for asphalt plants that are required to have a permit because they are 5 ton per hour industrial processes needing a control device to comply with state emission standards. Asphalt plants constructed after June 11, 1973 also need an operating permit because they are subject to a New Source Performance Standard [40 C.F.R. 60, Subpart I]. (There are other reasons listed why an asphalt plant might need a permit, but the 5 ton per hour criterion is the one that most typically causes the entire operation to need a permit.)

[18 AAC 50.325(b)(3), (c), 1/17/97]

Since asphalt plants often include rock crushers to break down the oversize material to be fed into the process, or to recycle asphalt pavement, the permit also allows the permit to be used for rock crushers. Rock crushers put into service after August 31, 1983 are subject to 40 C.F.R. 60, Subpart OOO. So the permit includes the requirements from Subpart OOO that apply to crushers known to operate in Alaska.

Crushers and associated equipment that capture emissions with mechanically induced draft, and emit them through a stack or vent are subject to additional requirements. But the department has not learned of any such units operating in Alaska. So we have not included the requirements in the permit. Any crushers or associated equipment with mechanically induced draft subject to Subpart OOO would have to get a facility specific permit.

Excluded Facilities

The permit excludes a facility from using the permit if

- The facility has a facility specific limit not listed in the general permit,
- The facility is subject to certain EPA emission standards,
- The facility is subject to certain state emission standards, or
- Open burning will be done at the facility.

An operating permit, including a general permit, must contain permit conditions to assure compliance with all air quality control requirements [18 AAC 50.350(d) – (f)]. The general permit does not include conditions that would apply to the excluded facilities. However, the facility may operate under more than one general permit as long as all of the requirements that apply to the facility are adequately covered in at least one of the permits.

Facility specific limits that would exclude a facility from using this permit do not include a limit on production rate imposed because source testing was done at less than full rated capacity. Facilities are excluded from using the permit if conditions that apply to them are not in the permit. The permit contains a condition that limits the production rate to a rate for which compliance was demonstrated.

## Standard Permit Conditions

Conditions 1 – 14 are listed in 18 AAC 50.345. That regulation requires the conditions to be in every operating permit, including general operating permits.

## Dryer or Drum Mixer

## Particulate Matter Emissions.

Condition 15
Two particulate matter standards apply to asphalt plants. The state limit of 0.05 grains per dry standard cubic foot (gr/dscf) applies to plant construction before June 11, 1973 because the dryer or drum mixer (along with associated equipment) is an industrial process. [18 AAC 50.055(b)(1)]

An asphalt plant constructed or modified before June 11, 1973 is subject to a limit of 0.04 gr/dscf through both the state limit in 18 AAC 50.055(b)(5) and the New Source Performance Standard in 40 C.F.R. 60.92, adopted by reference in 18 AAC 50.040(a).

18 AAC 50.350(d)(4) requires that the permit contain conditions necessary to ensure that the facility will comply with the emission standard in condition 15. Several conditions work together to ensure this.

Stack Testing
Condition 16 requires the operator to test stack emissions using the EPA reference test method and compare the results to the emission standard at least once every 5 years. If the results are close to the standard, the test must be repeated within a year.

If a test has not been done within five years of the start date of the permit, a new test must be done within 30 days. Some asphalt plants normally operate less than 30 days per year. This could make it difficult to arrange a source test. The permit allows operation of a source that has not been tested in 5 years without a source test, but only up to 30 days per year, and 6 hours per day.

Throughput Rates
Since the emission rate will depend on the amount of material processed in a given time period, once the emission rate has been measured, condition 17 only allows the equipment to

be used at processing rates that do not exceed the rate that material was processed during source testing that showed compliance with the emission limit. This is to prevent operating at higher rates that may exceed the limit.

Facilities with Baghouses

Condition 18 give minimum frequencies for baghouse inspections, and calls for monitoring pressure drop and outlet temperature, and maintaining these parameters within limits recommended by the manufacturer

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After a run is completed, the baghouse temperature will drop through the range where acid gasses will condense. Corrosion will be minimized if the temperature passes through this range as quickly as possible. Therefore this requirement is to maintain temperature until the baghouse has been purged. Reducing corrosion will lengthen the life of the baghouse and maintain the integrity of the fabric filter clamps and fasteners.

Monitoring the pressure drop across the baghouse enables the operators to determine how the baghouse is functioning. Baghouse differential pressure (dp) higher than the manufacturer's maximum recommended dp indicates too much buildup on the bags or a blocked hopper. Lower than manufacturer's recommended differential pressure may indicate that a bag or more may have been damaged. Exit temperature monitoring and differential pressure is included to support this condition.

Equipment can remain idle for 6 months or more over the winter. Corrosion can occur during that time. The condition is intended to assure that control equipment will be effective when it is needed. These conditions are to be supported by maintenance logs.

Facilities with Wet Scrubbers

Condition 19 has an inspection requirement at the beginning of the operating season if the particulate matter control device is a scrubber, along with requirements that the pressure drop across the scrubber be within $\pm$ 30% of that during a successful source test, and the water flow rate be at least 80% of the source test flow rate.

These conditions are intended to support compliance with opacity and particulate standards by encouraging proper scrubber maintenance and operation.

> Scrubber efficiency is related to the pressure drop. The range allowed is consistent with department experience, and with a similar provision in 40 C.F.R. 60, Subpart OOO.
>
> Monitoring and recording of scrubber pressure drop once per day and daily records for maximum and minimum pressure differentials support this condition.
>
> Scrubber efficiency is related to the water flow rate. The range allowed is consistent with a similar provision in 40 C.F.R. 60, Subpart UUU.

Continuous monitoring and recording of water flow rates, and daily records for minimum flow rate support this condition.

Operation and Maintenance Plan

The department has asked the facilities to submit an operations and maintenance plan that shows the frequency of inspections, cleanings and preventative maintenance repair or replacement. [Condition 33]

Visible Emissions Observations

The Beer-Lamber Law (or Bouguer's Law) provides the basis for the correlation between the plume opacity and particulate matter emissions. The relationship depends on the optical properties of the particulate matter emitted. The permit requires opacity observations to be taken during particulate matter sources tests. Visible emission observations provide ongoing information on particulate matter emissions.

Initial Performance Testing

A new asphalt plant is required to do an initial performance test within 180 days of initial startup. Condition 20 includes the requirements of 40 C.F.R. 60, Subpart A for an asphalt plant that is new and has not yet had the initial performance test.

## Opacity

Conditions 21 and 22 reiterate the opacity limits that apply, and establish periodic monitoring using Method 9, EPA's reference test method for visible emissions. The condition requires that the readings be taken during operation that is typical of the maximum operation that will occur during the reporting period.

## Sulfur Dioxide

Condition 23 presents the sulfur dioxide emission limit of 18 AAC 50.055(c). The most effective way to assure compliance with this limit is by tracking fuel sulfur content [condition 24]. This includes sulfur content of used oil that is used as fuel.

The department anticipates that the amounts of used oil generated on site are considerably less than what could be burned from off-site sources. If only small amounts are burned at any one time, testing each batch could be unreasonable. EPA guidance has recommended blending used oil 1 part to 3 parts fuel oil to reduce emissions. On-site used oil must be blended but need not be tested.

The limit on sulfur content for operation in an $SO_2$ special protection area is for protection of ambient air quality standards. The department performed ambient modeling and this is a conservative requirement. If facilities would like a less stringent fuel sulfur limit that the general permit can not be used and they must get a facility specific operating permit that include an ambient air modeling demonstration. 18 AAC 50.201 provides the authority for conditions in an operating permit to protect ambient air quality.

## Stationary Diesel Engines

Emission Standards in 18 AAC 50.055 only apply to stationary diesel engines. An engine is classified as a nonroad engine [not a stationary source] if it does not remain in the same location for at least one year, or return seasonally for at least two consecutive operating seasons.

For diesel engines, Condition 25 presents the same particulate matter, opacity, and $SO_2$ standards as described above. The visible emission and particulate matter monitoring plan in Attachment 4 is patterned after the standard permit condition adopted by 18 AAC 50.346. The standard condition allows a permit to contain a different condition if it more adequately satisfies the requirements of 18 AAC 50.

The plan differs from the standard condition because sources operating under this permit tend to operate seasonally, rather than year round. So opacity monitoring schedules based on year round operation were changed.

The plan in this permit was also altered because it is highly unlikely that any diesel engine used under permit would have a stack with a diameter 18 inches or larger. So the conditions were simplified assuming all stacks would be smaller.

## Crushers

Equipment which is subject to Subpart OOO is equipment at a fixed plant with a cumulative rating of all initial[1] crushers greater than 25 tons per hour; or equipment at a portable plant with greater than 150 tons per hour cumulative ratings. The pieces of equipment affected by the applicable conditions are rock crushers, grinding mills, screening operations, bucket elevators, belt conveyors, bagging operations, storage bins, enclosed truck or railcar loading stations. Only the pieces of equipment installed, reconstructed[2] or modified after August 31, 1983 are subject to Subpart OOO.

Condition 27 contains the applicable limits. It also says to label all NSPS equipment. Some equipment at a single plant typically is subject to the NSPS, while some is not. To assure compliance it is necessary that both operators and department staff be able to tell which is which.

Condition 28 contains the periodic monitoring. Method 9 observations must be done at least every 14 operating days.

Replacement of pieces of equipment that are too old to be subject to Subpart OOO with newer equipment only makes the new equipment subject in certain cases –

[1] Initial crushers are defined as crushers that process some rock that has not been previously crushed.
[2] Reconstructed is defined in 40 CFR 60.673.

- Replacing the entire line, or
- Increasing the capacity of the piece of equipment.

Condition 29 explains when the new equipment would become subject, and what must be done to notify EPA and the department.

## Fuel Storage Tanks

Asphalt plants typically burn as fuel natural gas, propane, or a low volatility liquid fuel. If liquid fuel storage tanks are stationary, were installed after July 1984 and are larger than 10,567 gallons they are subject to an NSPS record keeping requirement. [40CFR60.116b(a) & (b), Subpart Kb] Condition 30 contains that requirement. It does not contain any of the emission control requirements of Subpart Kb because it is unlikely that an asphalt plant would burn fuel volatile enough to trigger those requirements. Instead a facility that would burn the more volatile fuel is excluded from using this permit.

## Operations at Bells Flats

One asphalt plant operates at the Bells Flats area of Kodiak Island. Because of complaints received during the life of the original general permit for asphalt plants, the department did a preliminary analysis under 18 AAC 50.201 of the impact of that operation using computer dispersion modeling. The analysis predicted that there would be not violations of ambient standards as long as the plant burned liquid fuel with a sulfur content of 0.4% or less and does not operate more than 13 hours per day. The proposed general permit contains those limitations so that the plant in Bells Flats can use the general permit.

Monitoring compliance is through fuel and hours of operations records that are already part of this permit.

## Facility Wide Requirements

### Fugitive Dust

Asphalt plant have a considerable potential for generating fugitive dust. 18 AAC 50.045(d) requires an operator to take reasonable precautions to prevent fugitive dust when handling bulk materials. Condition 32 applies that regulation to asphalt plants. It lists examples of precautions which would be reasonable for this activity, to be used as necessary.

To address site specific differences, the application had to have a dust control plan attached if the plant is to be located within one mile of a business, residence or other inhabited structure. The plan must be specific to any location named in the application. The condition also says that the applicant must revise the plan if requested by the department. The one mile distance came from dispersion modeling done to support this permit. Modeling predicted that during dry conditions, if precautions are not taken to control emissions from fugitive sources, ambient air quality standards could be violated up to a mile away.

The applicant must comply with the plan. Therefore the plan must say what the operator will do and under what circumstances. Otherwise it would not be possible to tell whether the operator is following the plan or not.

**Air Pollution Prohibited**

Conditions 34 and 35 incorporate the regulation prohibiting air pollution of 18 AAC 50.110, and the corresponding standard condition for monitoring compliance that is adopted in 18 AAC 50.346.

**Coastal Zone Management**

Condition 36 adds specific fuel storage requirements of the coastal zone program. AS 46.14.120(d) requires permits to include comply with all state requirements.

**Fees**

Condition 37 and Attachment 2 implement the requirements to pay permit administration fees and emission fees. [18 AAC 50.400, 410.] The cost of issuing a general permit (permit administration fees) is a flat fee of $300. But permit administration fees are also assessed for department staff time spent on the facility during the life of the permit. This typically includes such work as reviewing reports and inspections.

Annual emission fees are assessed at a rate set in 18 AAC 50.410. Fees are paid on any air contaminant emitted in amounts of at least 10 tons per year. The amount of emissions on which fees are paid is either the potential to emit, or is based on actual emissions. To pay on actual emissions, the permittee must send emission calculations to the department each year.

**Location**

Because of public complaints during the last 5 years, the department did additional modeling to predict the impacts of asphalt plants on ambient air. Sources modeled were the stack emissions (as horizontal or vertical point sources), and fugitive dust emissions, modeled as volume sources.

The distance requirement in condition 38a is based on the $SO_2$ three hour ambient standard. The requirement for a dust control plan for operations within one mile of the nearest off site inhabited structure is based on predicted 24 hour impacts of the ambient standard for PM-10. The distance restriction in condition 38b is based on the 24 hour increment for PM-10.

This location requirement is based on the best information available to the department. It does not guarantee that an operation cannot violate ambient standards or cause violations the

prohibition of air pollution if the equipment is not properly run, or fugitive emissions are not controlled. Therefore, the condition also advises the permittee that if the operation results in complaints, the complaints will be investigated. The condition lists some of the possible outcomes of the investigation.

See Attachment 1 of this Statement of Basis for a description of modeling performed.

## Monitoring, Record Keeping, and Reporting

Table 1 lists the monitoring, record keeping, and reporting requirements (MRR) that are included in the permit to satisfy 18 AAC 50.350(d)(4) and (f)(3), which say that the permit must include terms including monitoring, record keeping, and reporting necessary to ensure compliance with the requirements that apply to the facility. [Table 1 does not include permit deviation reporting for each condition. However, the introductory paragraph explains that this is required.]

Some of the MRR requirements listed include citations of other permit conditions where the requirements are more completely described. Others do not appear elsewhere and are established in Table 1.

### Excess Emissions and Permit Deviations

The permit implements the standard conditions for excess emissions and permit deviation reporting, with the changes noted, as well as for air pollution prohibited. The adopted standard condition says that the permit may use a different condition if there is a facility specific reason that the alternate condition will more adequately meet the requirements of 18 AAC 50. The standard language says that for permit deviations, the permittee must use the form provided in Attachment 3 of the permit. For excess emissions, the permittee also has the option of using the department's on-line form. The difference is because, at the time of adoption of the standard condition, there was no on line form for other permit deviations. Condition 38 allows the permittee the option of using an on-line form if the department develops one during the life of the permit. This more adequately satisfies 18 AAC 50 because the underlying statute directs the department to issue permits in a way that controls costs. The same information would be provided either way.

The general permit condition also directs the permittee to report within two days if there is a breakdown in an air pollution control device, and not to operate the plant after the breakdown until repairs are made. This source type has a great potential to cause violations of ambient standards and the prohibition of air pollution if operated without properly functioning air pollution control equipment.

### Semiannual Facility Operating Report

The operating report (Condition 40) must include the following compliance information:

- Whether [and how] there were deviations from required plans – dust, O & M;
- Monitoring results, including monitoring results that trigger additional testing or monitoring;
- Summary of deviations;
- Summary of complaints and responses;
- Fuel information;
- Activity rates.

Each of these will help the department understand the compliance status of the facility. 18 AAC 50.350(i)(5) requires reports on required monitoring at least every six months, and also calls for reporting on deviations from permit conditions.